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OXCART

HANDLE VIA BYEMAN
CONTROL SYSTEM

BYE-3101-64
Copy 12
3 August 1964

BRIEFING NOTE FOR THE DIRECTOR OF CENTRAL INTELLIGENCE

SUBJECT: OXCART Utilization Over Cuba

1. In response to your recent comments exploring the use of a reconnaissance vehicle other than the U-2 over Cuba we must disqualify ourselves regarding Air Force aircraft such as drones, B-58's or F-101's without time consuming research. As a logical successor to the U-2, we have examined the OXCART vehicle as to its availability and probability of survival. The review considers two speed regimes, mach 2.35 and mach 2.8. Related considerations are briefly outlined below.

2. Mach 2.35 Capability:

a. Status: A limited capability has been demonstrated at this speed regime. Performance data has been validated which would provide for a non-refueled range of approximately 1500 NM and an average penetration altitude of 67,000 feet.

b. Hardware: Five aircraft presently available []
[] possess this capability. Eight Project pilots are trained in this speed regime. Payload systems have been qualified.

c. Restrictions:

(1) Unacceptable performance of the ARC-50 rendezvous system. Qualification is expected by 15 October 1964. The development of air tactics and training for the Project pilots and tanker aircraft crews should be completed by 15 December 1964. Aerial refuelings could be accomplished using ground control vectoring and radio navigation aids with attendant increase in operational risk.

APPROVED FOR RELEASE
DATE: AUG 2007

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d. Vulnerability:

(1) An essential element of OXCART vulnerability estimates are computer simulations of the vehicle against the SA-2 weapon system. Intelligence information recently acquired from the [] has brought forth two major differences in the guidance equations for GUIDELINE as contrasted to earlier estimates. These two terms give the SA-2 system improved capability and modify previously recommended operational procedures.

(2) In order to guarantee survivability with the OXCART vehicle at mach 2.35 it is necessary to maintain a path no closer than about 10 NM to any SA-2 site, to use launch detection equipment to determine GUIDELINE launch, and to turn away from the site at a 2g level. If, however, the 10 NM offset or the maneuver fails, the vehicle is very susceptible. Miss distances become of the order of 50 to 300 feet under these conditions. When noise jammers become available in January 1965, miss distances increase but not to a safe level. In any event, launch must be detected. Either the signal intercept package or the Red Dog System (both available in October 1964) will give a launch signal even though with a risk of false alarms. The missile launch indicator radar which should drastically reduce the false alarm rate is scheduled for use by September 1965. The Fan Song RF Direction Finder, which is to be available in January 1965, is also necessary for determining the proper turn direction. However, if the locations of all the SA-2 sites are known, and with appropriate mission planning, the correct turn direction can be determined without the Direction Finder.

3. Mach 2.8 Capability:

a. Status: All assigned Detachment aircraft are presently undergoing a variable bypass modification which will permit sustained flight to mach 2.8 and above. The estimated non-refueled range at this speed regime should be approximately 2,000 NM; average penetration altitude should be 78,000 feet. An operational capability at this speed regime without aerial refuelings should be attained

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during the period from 15 October to 1 December 1964.

b. Hardware: Priority for the variable bypass modification has been established for four Detachment aircraft and should be accomplished during August 1964. Project pilot training in this speed regime should be completed during October 1964. The payload systems capability, though not expected to be a problem, will be verified during this period.

c. Vulnerability:

(1) In order to guarantee survivability with the mach 2.8 vehicle it is necessary to maintain a path no closer than 5 to 7.5 NM to any SA-2 site, to use launch detection equipment to detect GUIDELINE launch, and to turn away from the site at a 2g level.

(2) If the 5 to 7.5 NM path is not maintained or no turn is taken, the miss distance becomes very low without noise jamming. When the noise jammer becomes available, in January 1965, the combination of jamming and velocity increase (over the mach 2.35 vehicle) will appreciably increase the miss distance but not, in all cases, to a completely safe level.

4. Concept of Operation:

a. Initial: Until an aerial refueling capability has been established, mission would launch and recover from a Florida base, possibly McCoy Air Force Base.

b. Follow-On: Once an aerial refueling capability has been established, missions would launch and recover

c. Missions would be planned, directed and controlled by Project Headquarters and executed in the field by Agency personnel.

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5. Recommendation:

a. Overflight missions against Cuba at mach 2.35 are not recommended because of the following reasons:

(1) The mach 2.8 capability should be attained almost simultaneously with the availability of minimum necessary defensive systems.

(2) The one-third increase in range at mach 2.8 would provide more operational flexibility and greater target coverage.

(3) The reduced SA-2 avoidance path would permit higher photographic quality.

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Distribution:

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- 10 - C/PS/OSA
- 11 - RB/OSA
- 12 - Holdback

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EQUIPMENT SCHEDULE

<u>TITLE</u>	<u>FUNCTION</u>	<u>DATE OF TEST</u>	<u>OPERATIONAL DATE</u>
ARC-50	Refueling Rendezvous Equipment	Aug - Oct 1964	15 October 1964 all aircraft equipped
Signal Intercept Package	Intercept and record signals of interest to determine after a flight the extent to which it was tracked	Aug - Sept 1964	Oct 1964 with four units and ground processing gear
RED DOG	Passive missile lift-off indicator using missile guidance commands as the indication. Also optional active transmission of false commands to the missile	July - Sept 1964	Oct 1964 with two units using flight test gear.
FAN SONG RF Direction Finder	Intercept SA-2 RF signal. Locate and position radar site in range and azimuth within vulnerable zone. Also provides reference signals for correlation with RED DOG	Nov - Dec 1964	Jan 1965 with two units using flight test gear
S- and C-Band Noise Jammer	Deny target range from FAN SONG to force missile into three-point guidance mode.	Nov - Dec 1964	Jan 1965 with two units using flight test gear
Missile Launch Indicator Radar	Detect missile approximately four seconds after launch while missile is in boost phase. Identify by doppler frequency shift.	July - Aug 1965	Sept 1965 with two units using flight test gear

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